System Test Plan Instructions

An annotated document outline for a System Test Plan and an outline for a System Test Report. As part of a project's full testing approach, the System Test Plan provides a detailed description of the internal testing to be performed on a full system once it has completed integration testing. The goal is to internally verify that the system as a whole functions as planned under a variety of use conditions before performing any external customer beta or acceptance testing.

Thorough system test planning ensures that:

- The system will be exercised functionally as a whole to confirm that all features work as planned from a customer viewpoint.
- The system will be exercised from a real-world perspective, as much as is possible in the lab, testing for performance under load, handling of real-world error conditions, and so forth.
- Issues will be identified and corrected before putting the system into the hands of customers.

The test plan identifies the testing to be performed, clarifies the criteria for testing readiness and test completion, and covers related tasks and deliverables needed to support testing. It helps the team be truly ready to execute thorough system tests and find and correct issues before moving on to external customer beta or acceptance testing, where the impact of any remaining defects will be much higher.

1. Draft a version of the System Test Plan while development is underway. This timing will give the team lead time for obtaining the sometimes-significant amount of equipment needed to achieve realistic-enough functional and load testing in the lab.
2. Review the test plan with cross-functional team members to ensure that all testing aspects are covered. Include development and test group members, team members (e.g., manufacturing or IT) responsible for providing test infrastructure and team members who are close to the customer requirements and environment. The latter will be able to help review the plan for how well it covers conditions likely to be encountered at typical customers. Some of those conditions may not be testable in the lab, and instead relegated to a beta test activity at customers. Either way, the customer viewpoint will be brought to system test planning to help ensure that the testing is as on-target and thorough as possible for the intended customer environments.
3. Update the test plan as the system test phase nears and hold another review.

4. Use the plan as the guiding document as testers start to write detailed test cases. Review the cases for each type of testing against this plan to ensure that the intent of the testing has been met with a comprehensive set of cases.

5. When testing is due to start, use the plan to ensure that all elements are in place and that entry criteria for testing have been met.

6. As testing gets underway, manage the test team against the schedule dates in the plan.

7. As testing nears closure, reference the document to ensure that completion criteria have been met.

8. Use the System Test Report format to summarize testing results and confirm that the system test effort has accomplished its goals.

Document Outline: System Test Plan

Introduction

Revision History.

- Record revisions to the document.

Purpose and Scope.

- State the purpose and scope of the document.

List of Reference Documents

- List all reference documents, including Design Specifications, Architecture, Software Requirements Specification.

System Test Scope and Strategy

- Define the scope and strategy for testing the system.

Entry Criteria.

- Specify the criteria which must be met before system testing starts.

Features to Be Tested.

- List feature areas which will be tested.

Features Not to Be Tested.

- List any feature areas which will not be tested and why.

Safety-Related Testing

- (if applicable).

System Test Descriptions

- For each major set of tests to be run (such as major functional groups, and performance, stress, etc., describe the types of tests to be run. (NOTE: This is not a detailed description of test protocols or cases. Think of this as the test design phase.)

Functional Tests

- Testing to verify that the system meets its functional/feature requirements.

Configuration Tests

- Testing to assure that all functions work under all combinations (hardware configurations, device assignment combinations, etc.).

Load and Performance Tests

- Testing to confirm that performance objectives are satisfied. Includes accuracy testing.

Stress Tests

- Testing which attempts to break the system by stressing all of its resources.

Recovery and Error Handling Tests

- Testing to confirm that the system recovers from hardware or software malfunctions or user errors without losing data or control, or that it follows the error handling requirements defined for the system from the customer viewpoint.

Usability Tests

- Tests to confirm that the system contains the usability characteristics required for the intended user audience, user tasks and user environment.

Regression Tests

- Tests to ensure that changes during system test have not broken other functionality.

Specific Safety-Related Tests

- Any tests specific to verification of safety-significant software.

Tools and Test Equipment Required

- Identify all tools and test equipment needed to accomplish the system test. Examples are computer workstations, test beds of the product or system, oscilloscopes, meters, host operating systems, etc. Specify revision levels or version numbers where necessary.

- Test protocols (cases) developed separately will specify in detail all configuration information, set-up procedures, parameters, environmental conditions (lighting, humidity, etc.), etc., necessary for the testing. In this plan, summarize any significant configuration efforts, special environmental requirements, etc.

Responsibilities and Schedule

- Identify all personnel skill types and quantities, define the responsibilities assigned to each, and develop a schedule which shows the sequence of major test set execution and the amount of time estimated for that test set. Identify known risks and assumptions. If any of this information is included in other project-level plans, you may reference the section in that document.

Roles and Responsibilities

- Identify who will perform what functions during the testing. Key roles to cover:
    - ✓ Overall test manager
    - ✓ Lab/test configuration manager
    - ✓ Point person for any equipment from Manufacturing
    - ✓ Build manager and change control
    - ✓ Testers and specific expertise needed
    - ✓ Owner of defect reviews and decisions on fixes, retests etc.
    - ✓ Executive sponsor if needed for making “readiness” calls.

Key Dependencies

- Define key dependencies in the schedule (people or equipment resources, availability of other hardware or software under development, etc.)

Risks and Assumptions

- Identify any risks seen with the testing effort, including the riskiest areas of testing, personnel availability concerns, equipment availability concerns, etc. Indicate any actions being taken to minimize those risks and who is responsible.
- Call out assumptions that are important to the testing schedule and overall effort.

Test Schedule

- Call out in list or tabular form key dates related to the testing:
    - ✓ Start date
    - ✓ Target end date

- ✓ Interim date by which all test cases should have been run at least once
- ✓ Frequency of results reviews
- ✓ Any specific dates for completion of sub-sections of the testing, such as testing of particular sub-systems or functionality
- ✓ Dates related to completing the various forms of testing such as functional testing, performance testing, error testing, etc.

Problem Recording and Resolution

- Define the mechanism to be used for problem recording and resolution, including any necessary rework of documents, software or hardware elements, test plan or procedures. Include (or reference) any forms. Reference any standard problem tracking procedures which will be used.

Rework, Review and Retest Procedures

- Define the process for rework, review and retest of any element which needs modification. This process must include sufficient retest to verify that any modifications have not impacted other functions already tested. This process must also define the project guidelines for how related design and requirements documents will be updated as changes are made. *Change management processes for this phase must be defined and followed.*

Suspension, Restart and Exit Criteria

- Define the criteria for a) suspending testing before completion (for instance, the discovery of major problems with a certain feature); b) criteria for restarting testing following such a suspension; and c) criteria and review approach for determining that system test is complete.

Document Outline: System Test Report

Introduction

Revision History

Scope and Purpose

- Identify the scope and purpose of this document.

Reference Documents

- Identify all referenced documents, including Design Specifications and the System Test Plan.

System Test Strategy

- Reference the System Test Plan. Document any deviations to the strategy called out in the System Test Plan and the reasons for the deviation.

Test Results

- List all the test results in the order accomplished. Highlight any differences from expected results. This information can be in the form of a defect listing from the defect control system, along with a test log that shows test run, failures, retests and final results.

- Identify known problems which are being deferred for later correction (i.e., will not be allowed to delay the start of the next phase).

Rework, Review and Retest

- Discuss the rework and retest performed to correct defects discovered during system tests.

  This information can be included in the form of a summary report from the defect control system, showing resolutions, reviews and closure of specific defects noted during testing.

  The intent is for the team to use this section to review, understand and sign off on the set of changes made to the system to correct defects, confirming that the retests have been adequate to ensure that the changes worked and did not disrupt other functionality.

Completion Sign-off

- Document readiness for next phase. Include signatures as required by the project plan. Confirm which completion criteria have been met and, if any have been deferred, highlight them and the rationale for moving to the next phase with those criteria waived.

Administrative Information

Revision	Author	Date	Sections Affected	Change Summary
1.0		1/3/2009		

Current Version	1.0
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